EZ Connect™ Wireless USB Adapter

User Guide

SMC2662W-AR

V 1.0

EZ Connect Wireless USB adapter Manual

The 11 Mbps wireless USB adapter is an easy to use, cost-effective, high-speed and secure wireless networking device for the networked SOHO environment. It allows users to share network resources and provides instant access to the internet.

Using this adapter in conjunction with SMC's EZ Connect Wireless Access Point, you can create an instant network that integrates seamlessly with 10 Mbps Ethernet LANs. Moreover, moving or expanding your network is as easy as moving or installing additional Access Points - no wires!

English

PACKAGE CHECKLIST

The EZ Connect Wireless USB Adapter package includes:

- 1 EZ Connect Wireless USB Adapter with dual dipole antenna (SMC2662W-AR)
- 1 Installation CD-Rom
- 1 USB cable
- This User Guide

System Requirements

Before you install the EZ Connect Wireless USB Adapter, check your system for the following requirements:

- An available USB port in your computer.
- Windows 98/Me/2000 (Have the Windows installation CD-ROM ready for use during installation).
- A minimum of 1 MB of free disk space for installing the driver and utility program.
- Another IEEE 802.11b compliant device installed in your network, such as the SMC2655W Wireless Access Point, or the SMC2662W Wireless USB Adapter.

INSTALLATION

WARNING:

- Backup your driver CD-Rom and use the copy as the working diskette to protect the original from accidental damage.

1. Select an unused USB port and remove its protective bracket.
2. Carefully insert the USB cable and press until it is firmly seated in the USB port.
3. Install the appropriate network driver for your operating system. Drivers can be found on the CD-Rom that comes with this package.
4. Install the configuration program for your wireless USB adapter. The SETUP.EXE file can be found on the CD-Rom with this package.(D:\Drivers\SMC2662W\Utility\setup.exe)

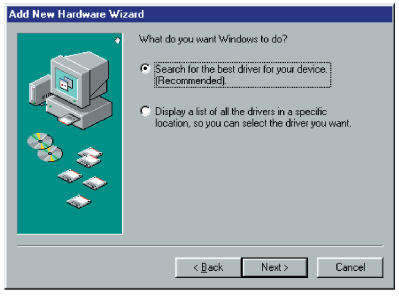
English

DRIVER INSTALLATION

Select the driver you need for your system and refer to this guide for the installation and configuration procedure. Any new or updated drivers can be downloaded from SMC's Web site at http://www..smc.com.

WINDOWS 98/ME INSTALLATION

1. Windows 98/Me will automatically detect the new hardware and prompt you to install the driver. Click "Next" to find the driver.


Add New Hardware Wizard
What do you want Windows to do?
Search for the best driver for your device. (Recommended).
Display a list of all the drivers in a specific location, so you can select the driver you want.
< Back
Next >
Cancel

2. Insert the CD-Rom that comes in the package and specify the location "D:\" and click "Next".

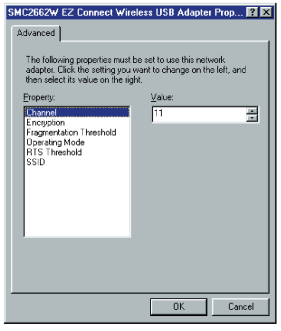
Add New Hardware Wizard
Windows will search for new drivers in its driver database on your hard drive, and in any of the following selected locations. Click Next to start the search.
Floppy disk drives
CD-ROM drive
Microsoft Windows Update
Specify a location:
A:\
Browse...
< Back
Next >
Cancel

3. Click "Next" to copy files from the CD-Rom.

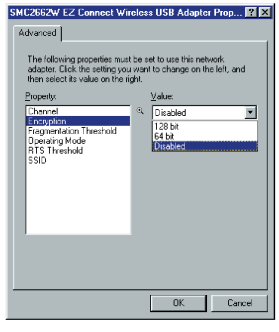
Update Device Driver Wizard
Windows driver file search for the device:
SMC2662W EZ Connect Wireless USB Adapter
Windows is now ready to install the best driver for this device. Click Back to select a different driver, or click Next to continue.
Location of driver:
A:\NETVUSBA.INF
< Back
Next >
Cancel

English

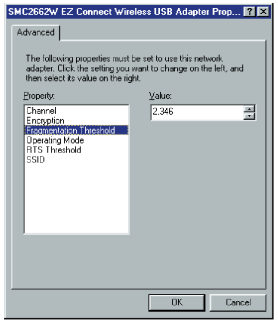
4. Set the "Channel" to the same radio channel as that used by the other wireless clients in your group. However, if you are connecting to a network via an access point, the adapter will automatically set the channel to be the same as that used by the Access Point.



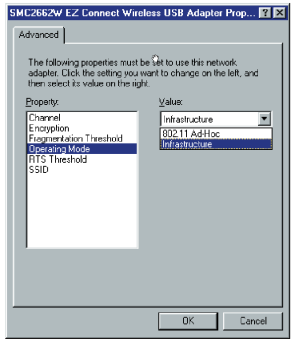
5. For more secure data transmission, set the "Encryption" to "128-bit" or "64-bit" to ensure wireless network security. The advance Wired Equivalent Privacy (WEP) is implemented in this card to prevent unauthorized access. The 128-bit setting gives a higher level of security but the setting must be the same for all clients in your wireless network. (Default: Disabled) To completely configure WEP, you must use the Configuration Utility. Please see "Encryption Screen" under the "Configuration and Diagnostic Utility" section.



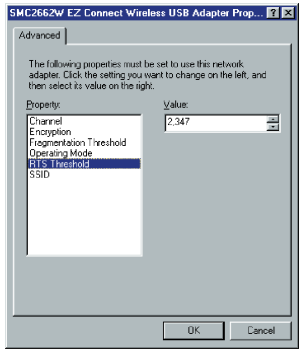
6. Set the "Fragmentation Threshold". (The Default is 2346 which means "Disabled")



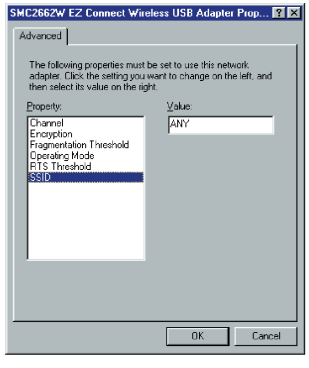
7. Set the "Operating Model" to "802.11 Ad-Hoc" or "Infrastructure" depending on the type of network you want to connect to.



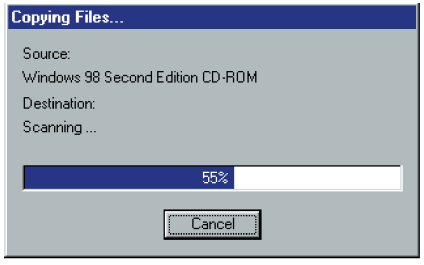
8. Set the "RTS Threshold" to the same as that used by other devices in your network. (The default is 2347 which means "Disabled")



9. Set the "SSID" identifier to the same as that used by the ad hoc work group or access point you want to connect to. (SMC2652W Access point default: WLAN) If you will be roaming among multiple Access Points with different BSSID's, a value of "ANY" will allow connection to any SSID.



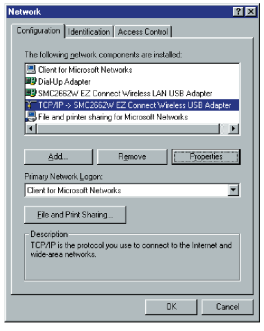
10. Insert Windows98/Me CD-ROM and click "OK". Windows will copy source file to your system.



Add New Hardware Wizard
SMC2662W EZ Connect Wireless USB Adapter
Windows has finished installing the software that your new hardware device requires.
< Back
Finish
Cancel

11. If you want to add more protocols after installation, go to control panel and double-click "Network".

12. Select the "Configuration" tab and click "Add" to install the network protocols you want to use, such as IPX/SPX, NetBEUI or TCP/IP. If you install TCP/IP, be sure to set the appropriate Gateway, DNS Server, and Domain for your network. If you install an IPX/SPX compatible protocol, then you also need to install the Client for NetWare Networks.



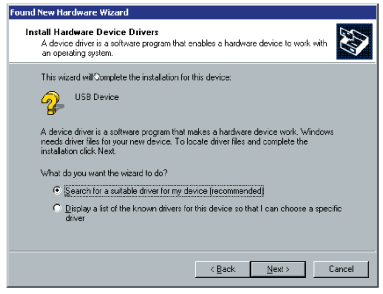
13. Click "File and Print Sharing" to share files or printers.

14. Click on the "Identification" tab on the Network dialog box, and specify your computer name and network workgroup.

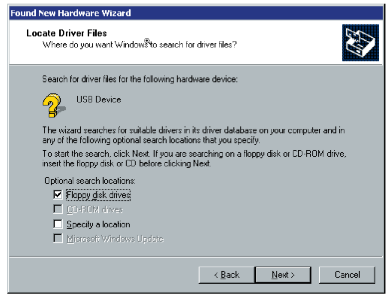
15. Click "OK" in the Network dialog box and the system will restart your computer.

WINDOWS 2000 INSTALLATION

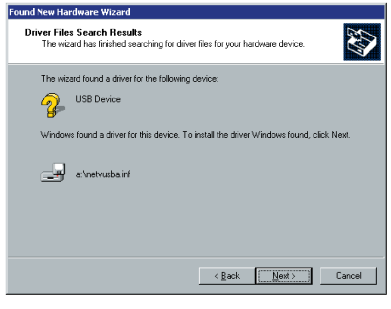
1. Windows 2000 will automatically detect the new hardware and prompt you to install the driver Click "Next" to find the driver.


Found New Hardware Wizard
Install Hardware Device Drivers
A device driver is a software program that enables a hardware device to work with an operating system.
This wizard will complete the installation for this device:
USB Device
A device driver is a software program that makes a hardware device work. Windows needs driver files for your new device. To locate driver files and complete the installation click Next.
What do you want the wizard to do?
Search for a suitable driver for my device (recommended)
Display a list of the known drivers for this device so that I can choose a specific driver
< Back
Next >
Cancel

2. Insert the CDROM included in this package and select "CD-Rom drives" and then click "Next".


Found New Hardware Wizard
Locate Driver Files
Where do you want Windows to search for driver files?
Search for driver files for the following hardware device:
USB Device
The wizard searches for suitable drivers in its driver database on your computer and in any of the following optional search locations that you specify.
To start the search, click Next. If you are searching on a floppy disk or CD-ROM drive, insert the floppy disk or CD before clicking Next.
Optional search locations:
Floppy disk drives
CD-ROM drives
Specify a location
Microsoft Windows Update
< Back
Next >
Cancel

3. Click "Next" to copy files from the CD-Rom.


Found New Hardware Wizard
Driver Files Search Results
The wizard has finished searching for driver files for your hardware device.
The wizard found a driver for the following device:
USB Device
Windows found a driver for this device. To install the driver Windows found, click Next.
e:\netvusba.inf
< Back
Next >
Cancel

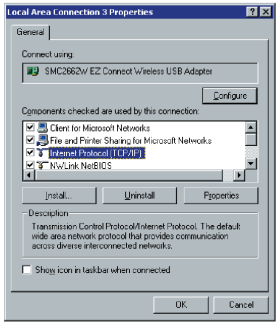
English

4. Finish the driver installation.

Found New Hardware Wizard
Completing the Found New Hardware Wizard
SMC2662W EZ Connect Wireless USB Adapter
Windows has finished installing the software for this device.
To close this wizard, click Finish.
< Back
Finish
Cancel

5. If you want to add more protocols after installation, go to control panel and double click on "Network and Dial-up Connections" and double click "Local Area Connection X", click "Properties".

6. Select the "General" tab and click "install" to install the network protocols you want to use, such as IPX/SPX, NetBEUI or TCP/IP. If you install TCP/IP, be sure to set the appropriate Gateway, DNS Server, and Domain for your network. If you install an IPX/SPX compatible protocol, then you also need to install the Client for NetWare Networks.



CONFIGURATION AND DIAGNOSTIC UTILITY

SMC's EZ Connect Wireless USB adapter provides free optional management software for quick network configuration and easy diagnostics. The CD-Rom that comes with the package contains a user-friendly interface for configuring the EZ Connect Wireless USB Adapter.

Utility Installation

To install the utility software:

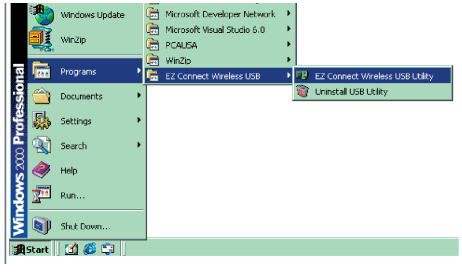
1. Insert the CD-Rom that comes with this package into your computer's CD-Rom drive (D:\).

2. Select the folder "D:\Drivers\SMC2662W-AR" and double click on "setup.exe".

3. Follow the on-screen instructions to finish installation.

Using the Wireless LAN Utility

Once the installation is completed, the configuration utility can be accessed by selecting the "EZ Connect Wireless USB Utility" icon from the "EZ Connect Wireless USB" folder.



Quick-Launch Icon

After the utility program is running, it will have a "Quick Launch" icon in the lower right hand corner of the task bar. Double clicking the icon in the Quick Launch bar will open the EZ Connect Wireless USB Utility program, providing quick access to all settings of the adapter. This configuration software includes the following functions:

Monitor Allow you to monitor network status and configure parameters for the wireless adapter.

Statistics Show the statistics of the wireless adapter.

Site Survey Scan/Show all the APs in range.

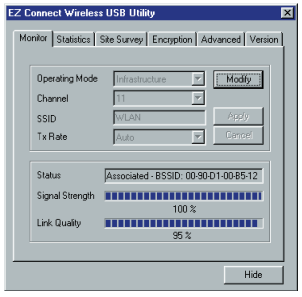
Encryption Provides WEP security control.

Advanced Allow you to configure the advanced settings.

Version Show the version information.

Monitor Screen

When you start the wireless USB utility, the information window for the SMC2662W-AR is shown as the figure below. Click on the "Monitor" tab to monitor the network status of the wireless adapter, including the BSS ID, current channel, link quality, and signal strength.



Click "Modify" to configure "Operating Model", "Channel", "SSIDl" and "Tx Rate". After configuration, just click "Apply" to save the changes.

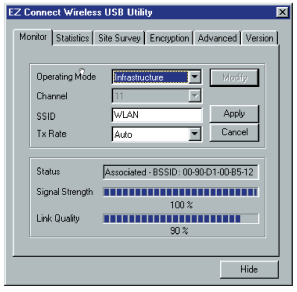
Operating Mode Set the station operation mode to io802.11 AdHocl1 for network configurations that do not have any Access Points, or to "Infrastructure" for configurations with Access Points. ("Infrastructure" is the default setting)

Channel If you are setting up an ad hoc wireless LAN, set the channel number to the same radio channel as that used by the other wireless clients in your group. However, if you are connecting to a network via an Access Point, then the channel is automatically set to the channel of the Access Point that the adapter connects to.

SSID Input an SSID string that you want to connect to ("ANY" is the default setting). If you will be roaming among multiple Access Points with different BSSID's, a value of "ANY" will allow connection to any SSID.

Tx Rate Indicates the communication rates. Select appropriate transmission speed to match your wireless LAN settings. (Default: Fully Automatic)

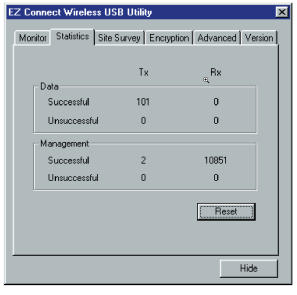
PS Mode Enable the Power Saving Mode for reducing power loading. (Default: Disabled)



Note : The "Channel" can only be set when the "Operating Model" is "802.11 Ad-Hoc".

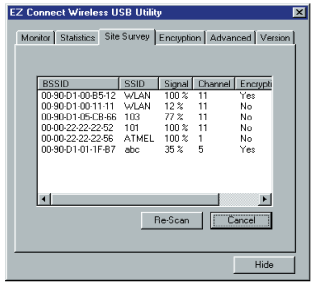
The Statistics screen

The Statistics screen displays "Data Frames" and "Management Frames".



Site Survey Screen

The Site Survey screen displays all AP's in wireless LAN, and you can choose one of them to connect to by double clicking.



Encryption Screen

Encryption

For more secure data transmission, set the **"Encryption"** to "128-bit" or "64-bit" to ensure wireless network security. Wired Equivalent Privacy (WEP) is implemented in this adapter to prevent unauthorized access to your wireless network. The 128-bit setting gives a higher level of security, but the setting must be the same as other clients in your wireless network. (Default: Disabled)

The WEP (Wired Equivalent Privacy) implemented in SMC's EZ Connect Wireless USB adapter is based on an RC4 encryption algorithm. The security keys provided to ensure data confidentiality are four 10 digit keys for the 64-bit WEP setting (first screen below) and one 26-digit key for the 128-bit WEP setting (second screen below). This WEP security protects your wireless LAN against eavesdropping and unauthorized access by hackers or unexpected intruders.

English

Create with Passphrase

Security keys for WEP encryption are generated from your Passphrase string, so you must use the same passphrase on all the other stations in your network.

Manual Entry

"Manual Entry" allows the user to manually enter key elements. (2 Hexadecimal digits in each block)

Default Key ID

Choose the Key ID that has the encryption string you prefer. If you are using a key generated from Passphrase, you must use the same Passphrase and key on each station.

To use the WEP function, take the following steps:

1. Select "128-bit" or "64-bit" for the **"Encryption"** field.

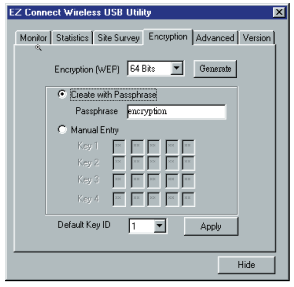
2. Then choose Create with **Passphrase**, type a string in the Passphrase field and click "Generate", then select the key, and click "Apply".

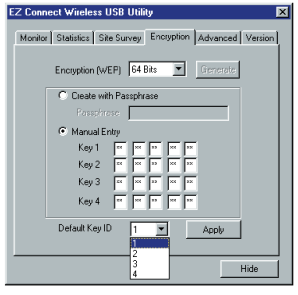
Note:

Passphrase string can consist of up to 32 alphanumeric character. Or choose **Manual Entry** and enter key elements in one of the keys 1-4, and click "Apply".

Note:

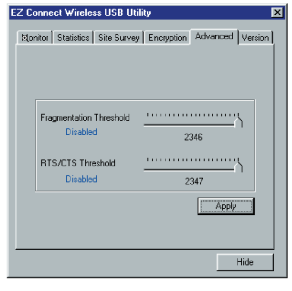
Each bit key must be hexadecimal.





Advanced Screen

Here you can set values of "Fragmentation Threshold" (Default: 2346, which means Disabled) and "RTS/CTS Threshold" (Default: 2347, which means Disabled).



NETWORK CONFIGURATION AND PLANNING

SMC's EZ Connect Wireless Solution supports a stand-alone wireless network configuration, as well as an integrated configuration with 10 Mbps Ethernet LANs.

The SMC2662W-AR USB adapter can be configured as:

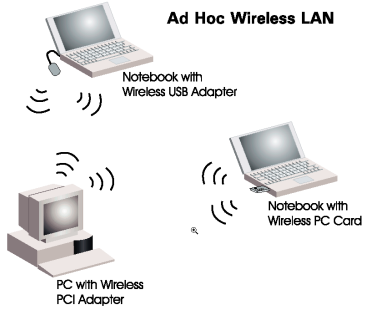
- Ad hoc for departmental or SOHO LANs
- Infrastructure for enterprise LANs

Network Topologies

Ad hoc Wireless LAN

An ad hoc wireless LAN consists of a group of computers, each equipped with a wireless adapter, connected via radio signals as an independent wireless LAN. Computers in a specific ad hoc wireless LAN must therefore be configured to the same radio channel.

An ad hoc wireless LAN can be used for a branch office or SOHO operation.

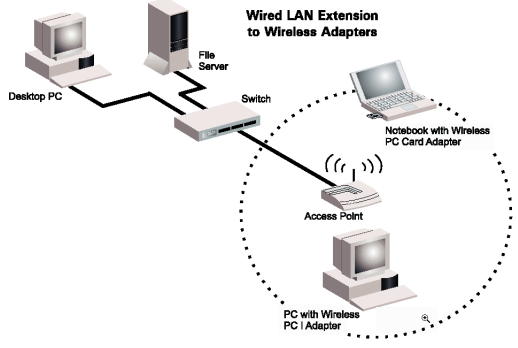


Infrastructure Wireless LAN

The SMC2662W-AR can also provide access to a wired LAN for wireless workstations. An integrated wired and wireless LAN is called an Infrastructure configuration. A Basic Service Set (BSS) consists of a group of wireless PC users, and an access point that is directly connected to the wired LAN. Each wireless PC in this BSS can talk to any computer in its wireless group via a radio link, or access other computers or network resources in the wired LAN infrastructure via the access point.

The infrastructure configuration not only extends the accessibility of wireless PCs to the wired LAN, but also doubles the effective wireless transmission range for wireless PCs by passing their signal through one or more access points.

A wireless infrastructure can be used for access to a central database, or for connection between mobile workers, as shown in the following diagram.

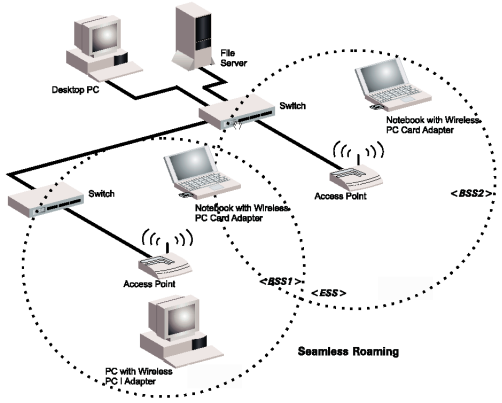


English

Setting the Communication Domain

Stationary Wireless PCs
The Basic Service Set (BSS) is the communication domain for each SMC2652W access point. For wireless PCs that do not need to support roaming, set the domain identifier (SSID) for the wireless card to the BSS ID of the access point you want to connect to. Check with your administrator for the BSS ID of the SMC2652W access point he wants you to connect to.

Roaming Wireless PCs
A wireless infrastructure can also support roaming for mobile workers. More than one access point can beconfigured to create an Extended Service Set (ESS). By placing the access points so that a continuous coverage area is created, wireless users within this ESS can roam freely. All SMC EZ Connect Wireless adapters and EZ Connect Wireless Access Points within a specific ESS must be configured with the same SS ID.



Before setting up an ESS for roaming, you need to choose a clear radio channel and ideal location for the Access Points to maximize performance.

TROUBLESHOOTING

Check the following troubleshooting items before contacting Technical Support.

USB adapter Installation Problems
If your computer can't find the EZ Connect Wireless USB adapter or the network driver doesn't install correctly, check the following:

- Make sure the adapter is connected to the USB port. Check for any hardware problems, such as physical damage to the adapter's connector.

- Try the adapter in another USB port. If this also fails, try using another SMC2662W wireless adapter that is known to operate correctly.

- Make sure your computer is using the latest BIOS.

- If there are other network adapters in the computer, they may cause conflicts. Disable or remove all other adapters from the computer and test the wireless adapter separately.

- Check for a defective computer or USB port by trying the adapter in another computer that is known to operate correctly.

- If there are still difficulties, remove the wireless adapter. Delete the file "Vnetusba.sys" from c:\windows\system(For Windows98/Me), c: \winnt\system32\drivers(For Windows2000).

  Then go to "Control Panel" and delete the adapter from your network configuration menu. Restart your PC and reinstall the adapter.

NETWORK CONNECTION PROBLEMS

If the LED's on the USB adapter are not lit, or if you can't access any network resources from the computer. Check the following:

- Make sure the correct software driver is installed. Try reinstalling the driver.
- Make sure the computer and other network devices are receiving power.
- The access point you want to connect to may not be functioning correctly. Try using another Access Point.
- If you cannot access a Windows or NetWare service on the network, check that you have enabled and configured the service correctly. If you cannot connect to a particular server, be sure that you have access rights and a valid ID and password.
- If you cannot access the Internet, be sure you have configured your system for TCP/IP.

If your wireless station cannot communicate with a computer on the Ethernet LAN when configured for Infrastructure mode, check the following:

- Make sure the Access Point which the station associated with is powered on.
- Check to make sure your wireless settings (i.e. WEP, SSID, Channel) match the AP or other stations you are connecting to.
- If you still can't connect, change the Access Point and all the stations within the BSS to another radio channel.

SMC NETWORKS 802.11B WIRELESS USB

ADAPTER MAXIMUM DISTANCE TABLE

Important Notice:
Maximum distances posted below are actual tested distance thresholds. However, there are many variables such as barrier composition and construction and local environmental interference that may impact your actual distances and cause you to experience distance thresholds far lower than those we post below. If you have any questions or comments regarding the features or performance of this product, or if you'd like information regarding our full line wireless products, you can visit us on the web of www.smc.com.

SMC Wireless USB Adapter				
Maximum Distance Table				
	Speed and Distance Ranges			
Environmental Condition	11Mbps	5.5Mbps	2Mbps	1Mbps
Open Environment: a "line-of-site" environment with no interface or obstructions between Access Point and Users.	180m(590ft)	300m(984ft)	450m(1476ft)	550m(1800ft)
Semi-Open Environment: An environment with no major obstructions such as walls or privacy cubicles between Access Point and users.	50m(164ft)	70m(230ft)	90m(295ft)	120m(394ft)
Closed Environment: A typical office and home environment with floor to ceiling obstructions between Access Point and users.	25m(82ft)	35m(115ft)	45m(148ft)	55m(180ft)

COMPLIANCES

FCC Class B Certification
This device complies with Part 15 of the FCC Rules. Operation is subject to the following conditions:

1. This device may not cause harmful interference.

2. This device must accept any interference received, including interference that may cause undesired operation.

Warning! This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.

- Increase the distance between the equipment and receiver.

- Connect the equipment into an outlet on a circuit different from the one which the receiver is connected to.

- Consult the dealer or an experienced radio/TV technician for help.

CE Mark Declaration of Conformance
This is to certify that this product complies with ISO/ IEC Guide 22 and EN45014. It conforms to the
following specifications:

EMC: EN55022(1988)/CISPR-22(1985) Class B
IEC 61000-4-2(2000) 4kVCD/8kVAD
IEC 61000-4-3(2000) 3V/m
IEC 61000-4-4(2000) 1kV- (power line)
IEC 61000-4-6(2000) 3Vrms
IEC 61000-4-11(2000) 3Vrms

This product complies with the requirements of the Low Voltage Directive 73/23/EEC and the EMC Directive 89/336/EEC, and carries the CE Mark accordingly.

English

SPECIFICATIONS

Functional Criteria

Data Rate	1, 2, 5.5, 11 Mbps
Transmission Mode	Half duplex
Network Connection	IEEE 802.11b wireless
Operating Range	Max distance of 11Mbps: 180m (590ft) Max distance of 5.5Mbps: 300m (984ft) Max distance of 2Mbps: 450m (1476ft) Max distance of 1Mbps: 550m (1800ft)

Radio Signal

Signal Type	Direct Sequence Spread-Spectrum (DSSS)
Operating Frequency	USA, Canada and ETSI: 2.4~2.4835GHz Japan: 2.4~2.497GHz
Sensitivity	1, 2, 5.5 Mbps: -80 dBm, 11 Mbps: -78 dBm (minimum)
Modulation	CCK, BPSK, QPSK
Output Power	>+15dBm (minimum)

Physical Characteristics

Current Consumption	TX 450mA Max RX 320mA Max Typical 350mA Max
Dimensions	133 x 108 x 30mm (5.23 x 4.25 x 1.18 in)
Weight	181 g (6.38 oz)
Antenna	Dual dipole antenna
LED Indicator	Power, RX, TX
Host Interface	USB specification reversion 1.1

Standards Conformance Certification	IEEE 802.11b
	FCC Part 15
	ETSI 300.328
	ARIB STD 33 & 66

Software

NDIS Driver/Utility	Windows 98 Windows Me Windows 2000

English

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